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NOTES ON THE FOREIGN TRADE STRUCTURE OF JAPAN AND THE FEDERAL REPUBLIC OF GERMANY: A COMPARATIVE ANALYSIS BY INPUT-OUTPUT-TABLES

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I. *Introduction*

The purpose of this paper is to consider the Japanese foreign trade structure by comparing it with that of the Federal Republic of Germany in the framework of an input-output analysis.

In recent years Japan has been accused of rapid increasing of exports, while restricting its domestic market. Trade friction is particularly severe in the field of automobiles, electrical goods, and data-processing equipment. To consider this problem, it is also necessary to investigate the domestic input-output structure, which is dependent upon foreign trade, in addition to the direct trade structure. Input-output-analysis is useful for clarifying the characteristics and significance of foreign trade for each industry and country. Also, a comparative view is effective in providing a proper perspective to deal with this problem. In this paper we compare the Japanese foreign trade structure with that of the Federal Republic of Germany (F.R.G.), which is often referred to as an example of an 'Economic Miracle.' By comparing the trade structures, the features of the Japanese foreign trade structure can be better clarified, and the economic background of trade friction is also brought into clearer focus.

An analysis is made in the following order. First, in section 2, the direct export and import ratio is compared as an introduction to determine trade differences between the two countries. Next, in section 3, a transition of the self-sufficiency structure is investigated by means of "Skyline" chart analysis proposed by W. Leontief. Lastly, in section 4, the structure of domestic production and imports induced by final demand is analysed. The relationship of exports to domestic production is also considered in the analysis.

A cross-sectional comparison between Japan and the F.R.G. by input-output-tables has been already attempted by other authors.¹ But inter-temporal analysis has been impossible because of the lack of available input-output-tables based upon the same compilation method.

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¹ For examples, see Ozaki (1980), p. 76. Economic Planning Agency (1974), p. 95.

The Federal Statistical Office (FSO) has revised the method principally three times.² The inter-temporal analysis in this notes is based upon the comparable 1970–1983 tables recently compiled by the FSO.

The inter-temporal analysis is limited to the 11-sectors level because of the comparability with the input-output-tables of Japan. Original 1970–83 input-output-tables in 1976 prices compiled by the FSO are made at the 12-sector level, but it is generally difficult to divide other services, except Commerce, transportation and communication, into market and non-market sectors in the Japanese input-output-tables. Therefore, it is necessary to aggregate the Japanese input-output-tables into 11 sectors from 162 sectors in accordance with the definition employed by the FSO. Note that we use input-output-tables in real prices, but the bench mark year differs between the F.R.G. and Japan. The year 1980 is employed as a bench mark year in Japan, but in the input-output-tables of the Federal Statistical Office the year 1976 is employed. This difference in bench mark year has little effect on our inter-temporal analysis.

A cross-sectional analysis for 1980 is possible at a greater disaggregated level, and here, the 26 sector level is employed (See Appendix). Basically, the 162 sector 1980 input-output-table was aggregated and adjusted according to the 58-sector definition employed by the FSO. The difference in compilation methods of the input-output-tables of the two countries is not addressed here.

II. *Export and Import Ratios*

The first subject to be considered is the direct export and import ratios of the two countries. Although other definitions are possible, here we define the two ratios as follows:

Define

$X=(X_i)$: gross domestic output vector;

$E=(E_i)$: export vector;

$M=(M_i)$: import vector;

Then each sectoral export and import ratio and each macro export and import ratio are defined respectively,

$e_i=E_i/X_i$: sectoral export ratio;

$m_i=M_i/(X_i+M_i)$: sectoral import ratio;

$e=\sum E_i/\sum X_i$: macro export ratio;

$m=\sum M_i/\sum (X_i+M_i)$: macro import ratio;

where X_i+M_i represents total supply of i -th sector.

Table 1 presents the calculated results. From these tables the following two facts can be easily seen.

² Yoshinaga (1986) pointed out the problems of compilation of input-output-tables in the F.R.G.

TABLE 1. EXPORT AND IMPORT RATIOS

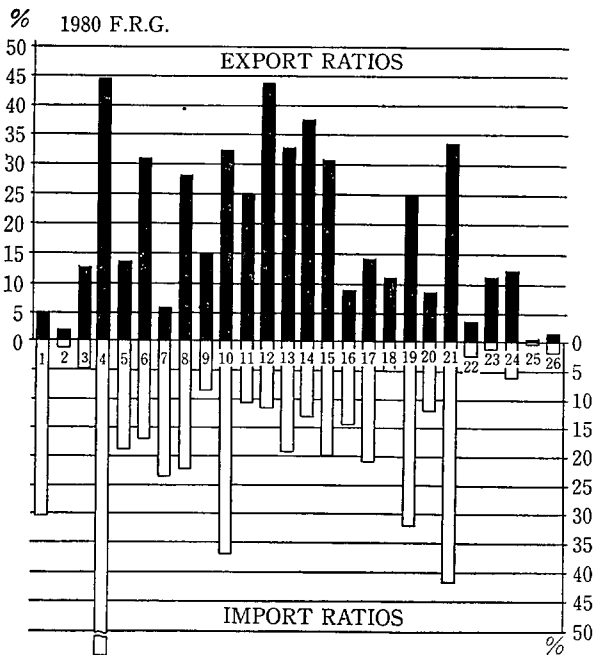
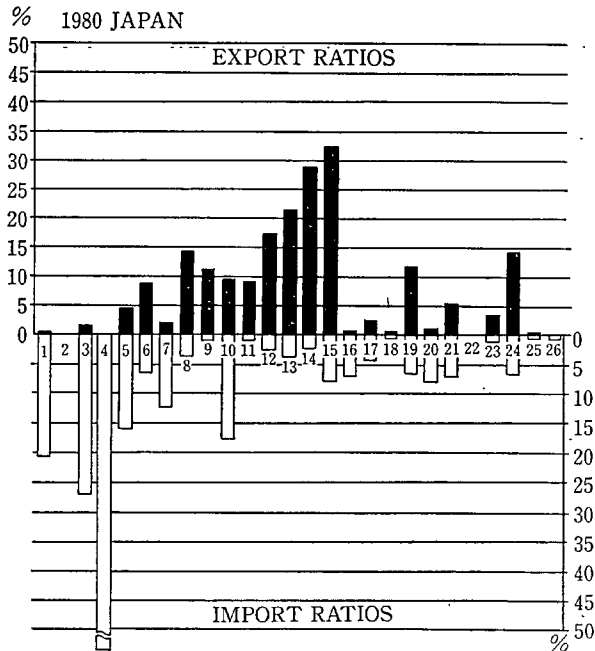
	1970		1975		1980		1982		1983	
JAPAN	Ei	Mi	Ei	Mi	Ei	Mi	Ei	Mi	Ei	Mi
sector 1	1.34	17.56	0.40	18.60	0.48	20.76	0.38	19.35	0.40	19.60
sector 2	0.18	51.24	0.16	49.86	0.29	47.70	0.24	44.50	0.26	43.47
sector 3	5.84	7.13	7.38	6.58	6.14	7.93	6.46	8.90	6.92	9.33
sector 4	7.52	3.86	12.95	4.15	11.16	4.88	11.42	6.66	12.42	6.98
sector 5	11.02	2.63	19.25	2.54	21.00	2.30	20.35	1.17	20.60	1.86
sector 6	8.85	4.99	12.77	6.77	15.17	5.81	16.03	4.57	15.98	3.99
sector 7	4.71	2.77	4.19	3.88	4.01	5.49	4.17	5.33	4.46	5.20
sector 8	1.50	6.59	1.03	6.75	1.12	8.09	1.15	8.65	1.22	8.51
sector 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sector 10	6.42	2.11	6.67	3.07	7.23	3.13	7.95	3.30	7.36	2.62
sector 11	0.22	0.62	0.18	0.69	0.31	0.82	0.29	0.77	0.26	0.69
MACRO	4.28	6.55	5.61	6.78	6.36	6.60	6.54	6.26	6.64	6.03
F.R.G.	Ei	Mi	Ei	Mi	Ei	Mi	Ei	Mi	Ei	Mi
sector 1	3.26	24.79	3.52	27.65	4.41	29.96	5.74	28.93	6.13	28.57
sector 2	7.78	27.00	6.63	26.87	8.36	27.96	7.42	24.35	6.93	23.37
sector 3	17.54	14.01	20.04	17.11	22.93	18.46	27.76	21.25	28.30	21.73
sector 4	11.39	10.57	16.09	9.71	17.00	12.83	20.53	13.52	19.73	13.88
sector 5	30.78	8.91	39.28	10.63	38.28	13.81	44.21	13.94	42.62	15.03
sector 6	23.19	9.50	28.74	14.38	33.21	19.39	40.21	20.38	37.90	21.41
sector 7	8.81	14.34	12.87	19.45	17.11	24.22	20.91	25.24	21.05	26.43
sector 8	3.26	9.74	5.54	10.65	8.75	12.55	10.36	13.82	10.53	14.24
sector 9	1.10	1.44	2.43	2.32	3.54	2.40	6.15	5.14	4.83	4.09
sector 10	9.32	3.32	11.29	3.11	11.15	3.00	12.78	3.57	12.96	3.38
sector 11	0.96	1.75	1.18	1.74	1.24	1.70	1.27	1.93	1.17	1.77
MACRO	9.89	8.87	11.95	9.77	13.28	11.29	15.42	11.68	15.05	11.87

(calculated from aggregated 11-sector input-output-tables in real prices)

First, the export and import ratios of both countries show an increasing trend at the macro level. The only exception is the Japanese import ratio. From 1975 it has decreased. This same trend is reflected at the sectoral level, especially of sector 2 (Electricity, gas and water supply), sector 5 (General Machinery and transport equipment) and sector 6 (Electric Machinery and precision instruments). In the F.R.G. the import ratio of sector 2 also shows the decreasing trend. However, an increasing trend in other sectors, for example sector 7 (Wooden, textile and leather products), offsets the decreasing trend. Sectors 5 and 6 show a reverse trend compared with Japan. In the case of exports, most of the sectors in both countries show a rising trend, except sector 1 (Agriculture, forestry and fishery) in Japan and sector 2 (Mining, energy and water supply) in the F.R.G.

Secondly, the export and import ratios of the F.R.G. are generally higher than those of Japan. The export ratios of the F.R.G. are particularly higher in sector 3 (Chemicals, petroleum, and non-metallic products), sector 5 and sector 6. On the other hand, the import ratios are higher in sectors 1, 5, 6, and 7. The noticeable fact is that in the case of sector

FIG. 1 1980 EXPORT AND IMPORT RATIOS



2 (Energy), the import ratio is higher in Japan. This reflects the overall dependency of imported crude petroleum in Japan.

Fig. 1 shows the export and import ratios in 1980 nominal prices at a more disaggregated 26-sector level. On this level the sectoral difference between Japan and the F.R.G. is more apparent. In particular the import ratios of the two countries in sector 3 (Coal and coal products) and sector 4 (Crude petroleum and natural gas) are quite different. The F.R.G. is basically an exporter of coal and coal products. The export ratio of crude petroleum and natural gas is extremely high in the F.R.G. This is also related to the method used to define the export ratio. For example if we define total supply (domestic production and import) as the denominator, the export ratio changes to 4.2 percent. In the F.R.G., about 45 percent of domestic production in crude petroleum and natural gas is exported despite an overall dependency on imports. In the Japanese case, exports of crude petroleum is almost zero. A similar tendency can be also found in agriculture (sector 1) and food industry (sector 20). In Japan, the export ratios of these sectors are nearly zero. But in the F.R.G. exports are also made despite the higher import ratios.

In Japan, precision instruments account for the highest export ratio, followed by transport equipment, electric machinery and general machinery. Compared with this, general machinery shows the highest export ratio in the F.R.G., followed by transport equipment, leather and accessories. Import ratios of these sectors are, without exception, lower in Japan than in the F.R.G.

In short, sectors with high export ratios are generally sectors of low import ratios in Japan, such as in the case of the manufacturing industry, and vice versa, as in the energy and food sectors.

III. *Self-Sufficiency Rate* —“Skyline” Chart Analysis—

The “Skyline” Chart analysis was originally developed by Leontief (1963) to study the foreign trade structure of developing countries. Here we employ this approach to clarify visually the differences in foreign trade structure between the F.R.G. and Japan.³

The concept and calculation method of “Skyline” Chart analysis is also discussed in this journal.⁴ Let us briefly refer to an outline of this method without resorting to algebraic expressions.

The “Skyline” Chart depicts the self-sufficiency rate in a two-dimensional graphic representation. The horizontal axis represents the gross domestic output of each sector. The vertical axis represents the self-sufficiency rate. The self-sufficiency rate is derived from the following three calculations for each sector.

- (1) The hypothetical domestic output which is required directly and indirectly to meet domestic final demand without any imports.
- (2) The hypothetical domestic output which is required directly and indirectly to meet exports.

³ Yoshinaga (1987) employed this method to clarify the difference in foreign trade inside the E.C.

⁴ See Kuboniwa (1987).

FIG. 2 SKYLINE CHART OF JAPAN AND F.R.G.

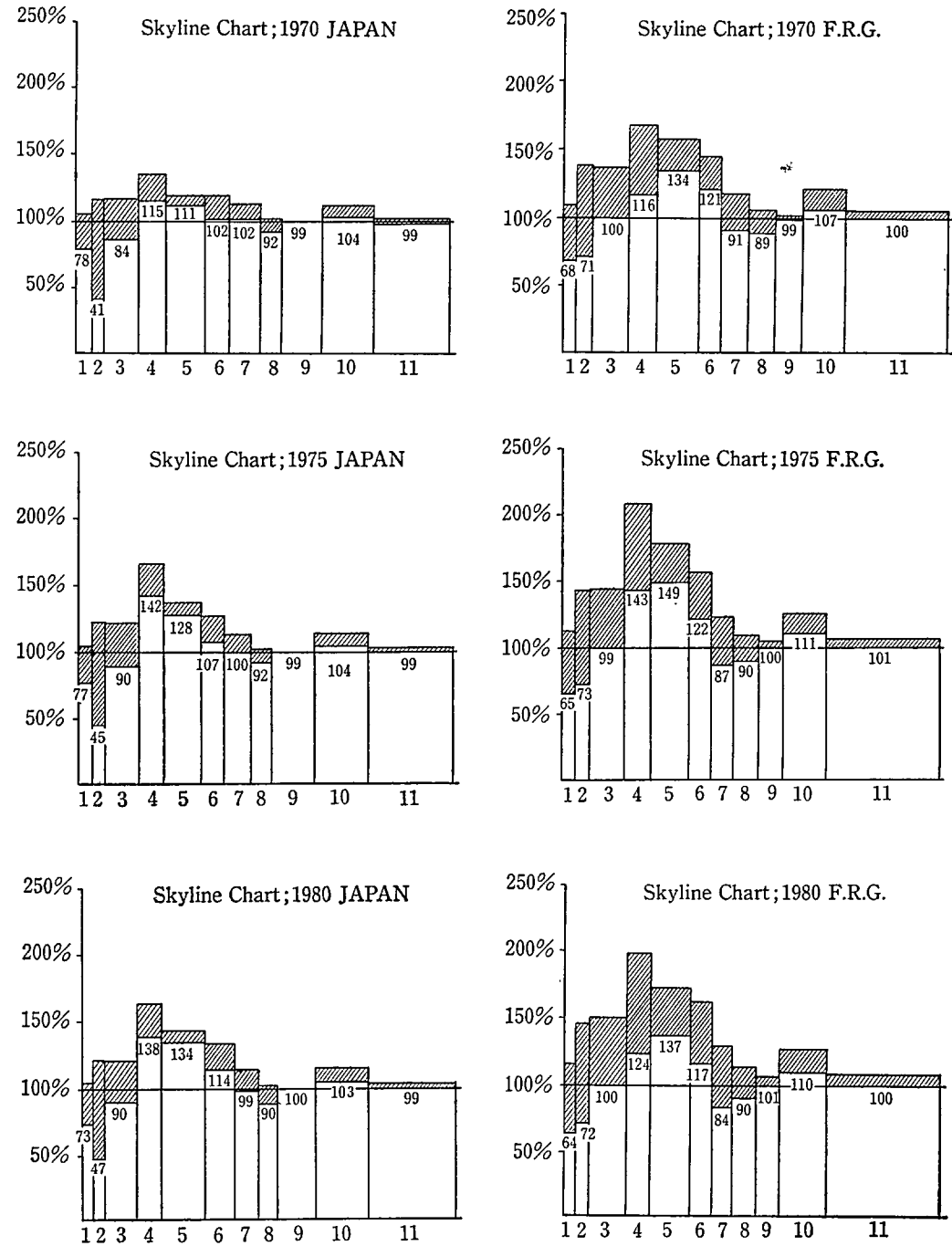
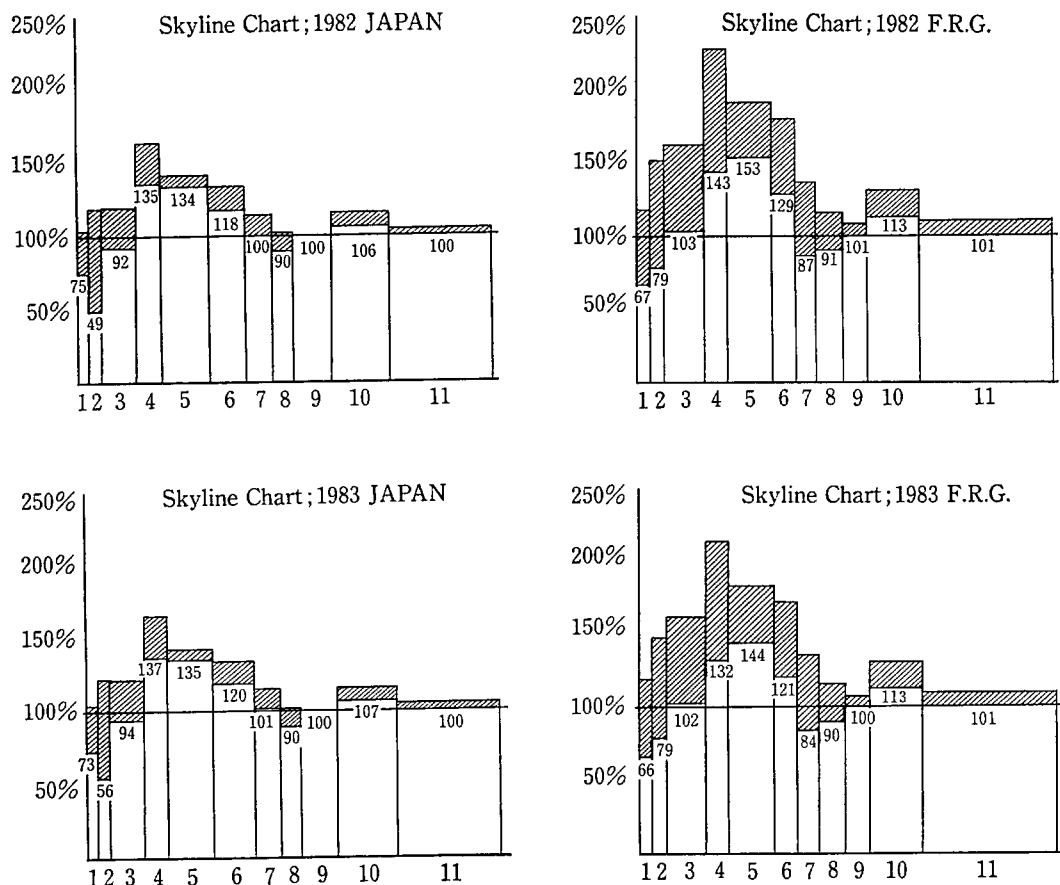


FIG. 2 SKYLINE CHART OF JAPAN AND F.R.G. (continued)



(3) The hypothetical domestic output which is required directly and indirectly to produce imports.

The real GDP can be computed by (1) plus (2) minus (3). In the "Skyline" chart analysis, the level of hypothetical domestic output (1) is assumed to be a 100% self-sufficiency rate. To this rate, the rate of (2) to (1) (i.e. 'export ratio') is added and the rate of (3) to (1) (i.e. 'import ratio') is subtracted to calculate the self-sufficiency rate of each sector.

Fig. 2 shows the "Skyline" Chart of the F.R.G. and Japan respectively, calculated from aggregated 11 sector input-output-tables in real prices. The shaded areas indicate the substitution of domestic production by imports. From this figure the following facts can be obtained.

First, the shaded areas are generally wider in the F.R.G.; namely domestic production is more often replaced by imports in the F.R.G. than in Japan.⁵ In particular, the manu-

⁵ This fact was first pointed out by Economic Planning Agency (1974) about 1970. Miyazawa (1986, p. 210) also compared the Japanese foreign trade structure with that of F.R.G.

facturing industries of the F.R.G. show not only higher rates of exports but also higher rates of imports. The Japanese "Skyline" is flatter in shape.

Secondly, basic metal products (sector 4) and general machinery and transport equipment (sector 5) raised the self-sufficiency rate substantially and account for the drastic fluctuations. But Japanese 'import ratios' are almost unchanged in these sectors as contrasted with the F.R.G. This also holds true in the Japanese electric machinery and precision instruments sectors.

Thirdly, the self-sufficiency rate of sector 3 (Chemicals, petroleum, and non-metallic products) also shows a rising trend in Japan, but is always under the 100% level, in contrast with the F.R.G. In the F.R.G., the self-sufficiency level of sector 3 is almost 100%, and is unchanged by the offsetting effect of the rising 'export ratio' by the rising 'import ratio.'

Fourthly, other differences between the two countries are also found in sectors 1, 2 and 7. In the case of sector 1 (Agriculture, forestry and fisheries) and sector 7 (Wooden, textiles and leather products), the self-sufficiency rates are lower in the F.R.G. and are decreasing due to the higher increasing trend of 'import ratios' than 'export ratios.' The self-sufficiency rate of sector 2 (Mining, energy and water supply) is surprisingly lower in Japan, as compared with that of the F.R.G., but it is rising gradually.

TABLE 2. THE TEN HIGHEST SELF-SUFFICIENCY RATE SECTORS

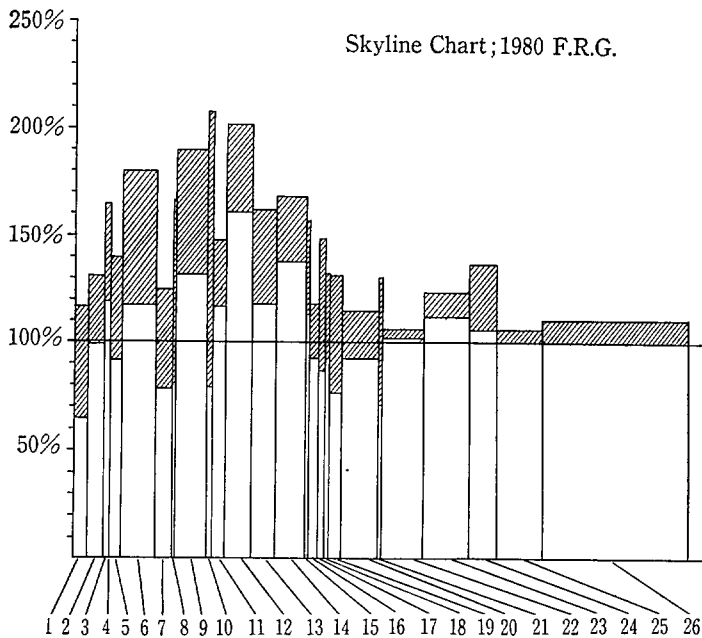
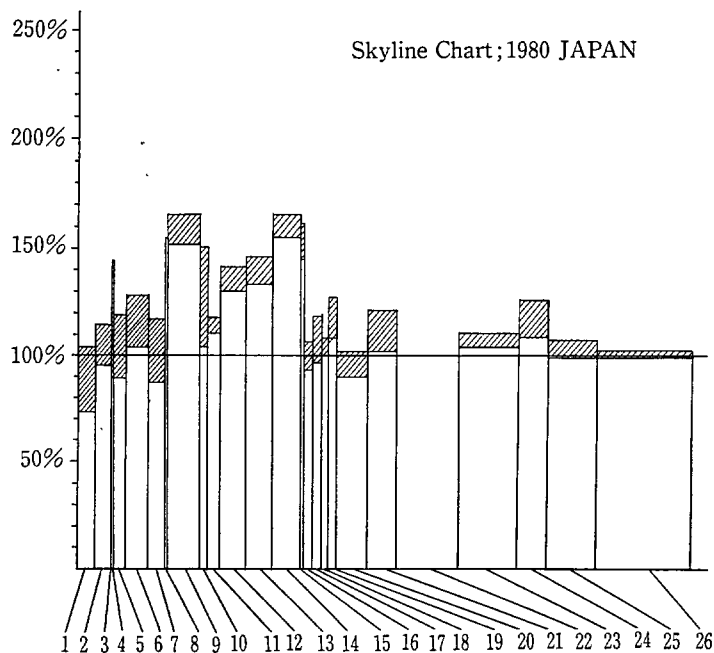
JAPAN (1980 nominal prices)

Rank	Sector	'Export Ratios'	'Import Ratios'	Self-Sufficiency Rate
1	Sec. 14 (Transport equipment)	65.5%	10.6%	154.9%
2	Sec. 9 (Iron and Steel)	65.7%	13.5%	152.1%
3	Sec. 15 (Precision instruments)	61.7%	17.3%	144.4%
4	Sec. 8 (Rubber products)	55.0%	16.0%	139.0%
5	Sec. 13 (Electric machinery)	46.1%	12.7%	133.4%
6	Sec. 12 (General machinery)	41.9%	11.5%	130.4%
7	Sec. 11 (Metal products)	18.6%	7.7%	110.9%
8	Sec. 24 (Transport, etc.)	26.5%	17.7%	108.8%
9	Sec. 19 (Textile products)	27.6%	19.1%	108.5%
10	Sec. 10 (Non-ferrous metals)	51.2%	46.8%	104.4%

F.R.G. (1980 nominal prices)

Rank	Sector	'Export Ratios'	'Import Ratios'	Self-Sufficiency Rate
1	Sec. 12 (General machinery)	101.4%	41.8%	159.6%
2	Sec. 14 (Transport equipment)	67.6%	30.3%	137.3%
3	Sec. 9 (Iron and Steel)	90.0%	58.5%	131.4%
4	Sec. 3 (Coal products)	64.4%	45.9%	118.6%
5	Sec. 13 (Electric machinery)	61.9%	44.3%	117.6%
6	Sec. 6 (Chemical products)	79.4%	62.9%	116.5%
7	Sec. 11 (Metal products)	47.9%	31.7%	116.2%
8	Sec. 23 (Commerce)	23.3%	11.4%	111.9%
9	Sec. 15 (Precision instruments)	57.1%	45.4%	111.7%
10	Sec. 8 (Rubber products)	66.6%	56.4%	110.2%

FIG. 3 1980 SKYLINE CHART (26-SECTOR LEVEL)



Sectoral differences can more clearly be found on a more disaggregated level. Fig. 3 shows the "Skyline" Chart of both countries in 1980 computed from aggregated 26-sector nominal input-output-tables. Table 2 shows the ten highest self-sufficiency rate sectors.

At a glance, it can be seen that self-sufficiency rate of Japan is higher in the basic metal and machine manufacturing industries, but this is due to the low level 'import ratios' of these sectors. 'Export ratios' themselves are also higher in the F.R.G. The difference is due to the proportion of substitution of domestic production by imports.

Let us now examine some sectors in more detail.

Firstly, in the energy sectors, the self-sufficiency rate of crude petroleum and natural gas (sector 4) is lowest in both countries (Japan : 0.6%, F.R.G. : 7.3%). However, as far as coal and coal products (sector 3) are concerned, the situation is different. The F.R.G. is an exporter of coal products, and the self-sufficiency rate is over 100 percent; namely 118.6 percent. In Japan, the self-sufficiency rate of coal ranks low next to that of petroleum and agriculture; that is 76.7 percent. These circumstances, as a whole, cause the self-sufficiency rate of the Japanese energy sector to be lower than that of the F.R.G.

Secondly, in sector 1 (Agriculture), sector 5 (Metal and non-metal mining), sector 16 (Lumber), sector 17 (Pulp) and sector 20 (Food products), the situation is similar. The 'Import ratio' (shaded area) is so much higher than the 'Export ratio' that the self-sufficiency rate itself is under 100 percent in both countries.

Thirdly, the competitiveness of exports is certainly strong, and 'Export ratio' is high in sector 9 (Iron and steel), sector 12 (General machinery)~sector 15 (Precision instruments), but the rate of substitution of domestic production by exports is quite different. Compared with the F.R.G., an almost one-sided form of exports can be found in Japan. These circumstances seem to indicate one of the sources of trade friction.

Fourthly, in the service sectors, the self-sufficiency rates themselves are different, to be sure, but the shape of the "Skyline" is quite similar.

IV. *Production and Import Inducement Structure by Final Demand*

Our purpose in this section is to analyse the inducement structure of domestic production and imports induced by final demand. Let us first explain the calculation method employed.⁶

Define

$X=(X_t)$: gross domestic output (GDO) vector;

$A=(A_{t,j})$: input coefficient matrix;

$M=(M_t)$: import vector;

$E=(E_t)$: export vector;

$F=(F_{t,j})$: domestic final demand matrix;

The import coefficient can be defined as

$$(1) \quad m_t = M_t / ((AX)_t + F_t)$$

⁶ See also Administrative Management Agency (1984).

In matrix form

$$(2) \quad M = M'(AX + F)$$

where M' is the diagonal matrix of factor m_i .

The demand and supply balance-equation can be written as

$$(3) \quad X = AX + F + E - M$$

It follows from Eq. (2) and (3) that

$$(4) \quad X = (I - (I - M')A)^{-1}((I - M')F + E)$$

From this Eq. (4), the domestic output induced by each final demand item can be calculated. And then substituting Eq. (4) into Eq. (2) follows

$$(5) \quad M = (MAB(I - M') + M')F + M'ABE$$

where $B = (I - (I - M')A)^{-1}$. The first part of the right-hand side of the equation (5) represents imports induced by each domestic final demand item, and the second part represents import induced by export demand; that is, from Eq. (5) imports induced by individual final demand items can be calculated.

Comparing domestic output and imports induced by each final demand item between two countries is non-productive because of the difference in currencies and bench mark years. So an inducement coefficient is employed for purposes of comparison.

The production inducement coefficient is the ratio of domestic output induced by each final demand to the corresponding final demand. The import inducement coefficient is the ratio of imports induced by each final demand to the corresponding item of final demand itself.

Table 3 shows the production inducement coefficients of both countries. Most of the coefficients of the F.R.G. show declining trends as opposed to those of Japan. In the case

TABLE 3. PRODUCTION INDUCEMENT COEFFICIENTS

F.R.G. (at 1976 prices)	1970	1975	1980	1982	1983
Private consumption	1.64	1.58	1.53	1.49	1.49
Government consumption	1.67	1.66	1.66	1.63	1.63
Gross domestic capital formation	1.78	1.69	1.60	1.51	1.51
Increase in inventories	1.80	1.64	1.51	1.86	1.22
Exports	1.99	1.95	1.89	1.84	1.83
Total final demand	1.74	1.69	1.64	1.60	1.60
Japan (at 1980 prices)	1970	1975	1980	1982	1983
Private consumption	1.76	1.68	1.68	1.67	1.70
Government consumption	1.56	1.49	1.52	1.53	1.56
Gross domestic capital formation	2.26	1.10	2.19	2.17	2.28
Increase in inventories	2.30	2.23	2.33	2.34	3.88
Exports	2.41	2.35	2.32	2.21	2.40
Total final demand	1.96	1.85	1.88	1.86	1.92

of Japan, a decrease in coefficient is also seen in 1975 after the "Oil Shock." The decline in coefficient of gross domestic capital formation is particularly severe. However, after this point no clear trend can be found. In regard to the level of coefficient, the coefficient in Japan is higher than in the F.R.G. except for government consumption. Among the other final demand items, exports provide the strongest inducing efficiency for domestic production in both countries, though exports also show a declining trend in both countries.

Table 4 shows the import inducement coefficients of Japan and the F.R.G. computed from aggregated 11-sector input-output-tables in real prices. At a glance, reverse tendencies can be seen in the import inducement coefficient of total final demand between the two countries. For the F.R.G., the tendency of the coefficients to increase can be found in almost every item. In particular, the coefficient of gross domestic capital formation shows a substantial rising trend. As a result, the coefficient of total final demand rises 5 percent. Compared with the F.R.G., the coefficients are decreasing slightly in Japan.⁷ Import inducement coefficients themselves are higher in the F.R.G. This tendency can be seen particularly in the rates for private consumption and gross domestic capital formation.

At the end of the analysis, we define an interesting coefficient referred to as the 'Coefficient of Linkage between exports and imports' and use it to compare the F.R.G. and Japan. It is certain that domestic production is induced directly and indirectly by exports to some particular countries, but induced production also induces imports from those countries at the same time. It is then possible to calculate how imports from country A are induced by exports to country A. If the ratio in regard to country A is higher than the ratios for other countries, it can be inferred that the relationship with country A is reciprocally closer in terms of foreign trade.

Table 5 shows the results of this calculation. In Japan, the coefficient is highest for Middle East, followed by South and South East Asia and the U.S. Approximately 2.2 per-

TABLE 4. IMPORT INDUCEMENT COEFFICIENTS

F.R.G. (at 1976 prices)	1970	1975	1980	1982	1983
Private consumption	0.20	0.22	0.24	0.24	0.25
Government consumption	0.09	0.10	0.10	0.11	0.10
Gross domestic capital formation	0.18	0.21	0.25	0.28	0.28
Increase in inventories	0.27	0.35	0.38	0.39	0.36
Exports	0.15	0.16	0.19	0.19	0.19
Total final demand	0.17	0.18	0.21	0.21	0.22
Japan (at 1980 prices)	1970	1975	1980	1982	1983
Private consumption	0.14	0.14	0.14	0.13	0.12
Government consumption	0.07	0.08	0.08	0.08	0.08
Gross domestic capital formation	0.14	0.13	0.13	0.12	0.13
Increase in inventories	0.24	0.08	0.18	0.11	-1.50
Exports	0.17	0.18	0.15	0.13	0.15
Total final demand	0.14	0.13	0.13	0.12	0.12

⁷ In nominal prices, these coefficients show rising trend until 1980. (See Kuribayashi (1987))

TABLE 5. COEFFICIENT OF LINKAGE BETWEEN EXPORTS AND IMPORTS

(UNIT: %)

	U.S.	Other American Countries	European Community	U.S.S.R. COMECON	Other Non-EEC Europe
Japan (1980)	2.22	1.01	0.86	0.23	0.32
F.R.G. (1980)	1.34	0.63	9.47	1.00	3.32
	Far East	Middle East	South & South East Asia	Oceania	Africa
Japan (1980)	0.89	3.65	2.23	0.79	0.46
F.R.G. (1980)	0.87	0.79	0.26	0.11	1.25

(computed from aggregated 26-sector input-output-tables in 1980 nominal prices)

cent of the amount of Japanese export to the U.S. are imported from the U.S. through the inducement mechanism. Japan is most interdependent on the Middle East in Foreign Trade, because petroleum imported from Middle East is also necessary for exports to the same area. In the F.R.G., the coefficient is highest for the E.C. in the extreme, followed by other non-EEC European countries and the U.S. It can be seen how closely the F.R.G. is linked to the E.C. in terms of trade.

V. *Concluding Remarks*

It is often commonly remarked that Japan and the Federal Republic of Germany have achieved an 'Economic Miracle' following their defeat in World War II. However, as we have seen in this paper, the trade structure of the two countries differs greatly, at least in terms of a comparison limited to the 1970s and 1980s.

It can be seen from the analysis that the economy of the F.R.G. is more dependent upon foreign trade, and its dependency is also deepening. In Japan, the economy is also deepening its dependency on exports, but the import ratio and import inducement coefficient is not increasing as opposed to the situation in the F.R.G. The substitution of import for domestic production is surprisingly small in Japan in comparison with the F.R.G., particularly in export industries, as the "Skyline" Chart shows. Here we can see graphic evidence of why Japan is accused of keeping markets closed to foreign countries.

APPENDIX: AGGREGATED SECTOR CLASSIFICATION

Aggregated 11-Sector Classification

Sector Number	Sector Name
1	Agriculture, forestry and fisheries
2	Mining, energy and water and sanitary services
3	Chemical, petroleum and non-metallic products
4	Basic metal products (iron, steel, non-ferrous)
5	General machinery and transport equipment
6	Electric machinery and precision instruments
7	Wooden, textile and leather products
8	Food products
9	Construction
10	Commerce, transport and communication
11	Other market and non-market services

Aggregated 26-Sector Classification

Sector Number	Sector Name
1	Agriculture, forestry and fisheries
2	Electricity, gas and water and sanitary services
3	Coal and coal products
4	Crude petroleum and natural gas
5	Metal and non-metal mining
6	Chemical products
7	Petroleum refinery products
8	Rubber products
9	Iron, steel materials and products
10	Non-ferrous metal materials and products
11	Metal products for construction
12	General machinery
13	Electric machinery and computers
14	Transport equipment
15	Precision instruments
16	Lumber, wooden products and furniture
17	Pulp, paper and paper products
18	Printing and publishing
19	Textile products
20	Food products
21	Leather, accessories and other industrial products
22	Construction
23	Wholesale and retail trade
24	Transport and communication
25	Financial and insurance services, real estate
26	Other market and non-market services

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